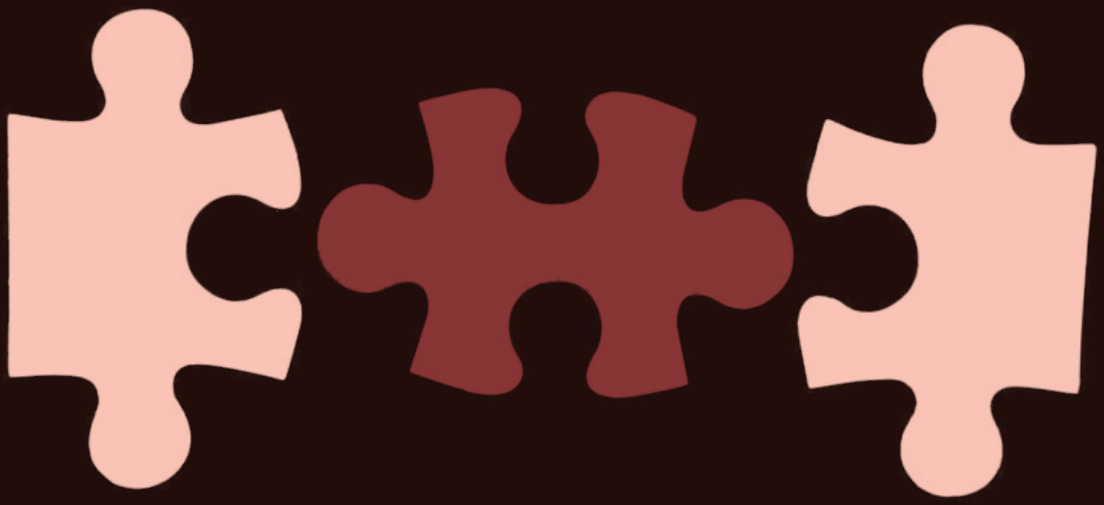
IndiaBioscience

ACADEMIA–INDUSTRY TRANSITIONS

10 THINGS TO KNOW BEFORE YOU MAKE THE MOVE



With growing focus on translation of research for collective benefit, there is increasing recognition of the way industry and academia are intertwined. Other than taking the bench research to the bedside, the industry also serves to be a place where many of the graduates produced by academia are taken up. However, the skill-sets of most of these graduates are often not aligned with the needs of the industry. Fresh graduates who are willing to move into the industry are also not sure of the path that lies ahead of them and thus are not sure of the best fit or ways to align themselves better based on the industrial requirements. In order to address this gap, we have curated a set of interviews with established industry professionals from various sectors who have successfully made the transition from academia to industry. Through this initiative, we hope to give fresh science graduates insights into the basic differences and similarities between academia and industry, and the best way to prepare themselves for an industry career.

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Foreword

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When asked to write a foreword, it is eminently advisable to know the subject. I knew what a useful resource IndiaBioscience is for India's growing Life Sciences community, with all the talks, workshops and meetings, especially the signature Young Investigators' Meeting held annually. But to update myself, I went to the IndiaBioscience website and was disappointed. Yes, disappointed with myself for not doing this more often. What a wonderful range of activities! At the same time, it is inclusive, diverse, engaging and loads of fun.

Science in India, and Life Sciences for sure, has been compartmentalized into basic/fundamental and applied/use-inspired, being based respectively in silos in academia and industry. They run as parallel streams, only hoping for that elusive sangam (confluence) that will truly harness the power of each to make discoveries that will solve societal needs.

The India Economic Survey 2017-18 had a chapter on "Transforming Science and Technology in India". It acknowledged that "India under-spends on research and development (R&D), even relative to its level of development", and goes on to add that "a doubling of R&D spending is necessary and much of the increase should come from the private sector and universities." This vision has now been carried forward in the Science, Technology and Innovation Policy 2020 (STIP 2020) that aims to increase private sector involvement in doing science and funding science.

The Life Sciences and Biotechnology sector has even more specific reasons for this alignment. The Indian biotechnology industry was worth US$ 63 billion in 2019, with biopharmaceuticals as the largest sector, accounting for about 62% of the total revenue, with bio-agriculture (14%) and bio-services (18%) also contributing significantly. The forecast is to reach US$ 150 billion by 2025, and that would mean growing from 2% to 19% of the global market share. India is also becoming a leading destination for clinical trials, contract research and manufacturing activities. The world's second-highest numbers of FDA-approved manufacturing plants are in India. It supplies 60% of childhood vaccines and is called the "Pharmacy of the World". Generation of knowledge and its translation into products and processes will be required to propel India forward in this sector. The 21st century offers us an opportunity for brand - building and job creation in this sector like information technology (IT) did in the 20th century.

This resource on academia-industry transitions from IndiaBioscience is both timely and useful. It will provide a handy resource to students at various levels of training, who plan a transition from academia to industry. Instead of 're-inventing the wheel', it is far more efficient to learn from the hits and misses of others. And this is exactly what is planned with this resource.

The ongoing pandemic of COVID-19 has exposed many gaps but has also highlighted a mindset that goes beyond the much cliched "jugaad". Indian companies are making vaccines for the world. This has improved vaccine access and equity for Indians and has become a symbol of our soft power. Yet, the fundamental discoveries on these vaccines or the platforms are not ours. When the pandemic started, we lacked basic protective gear and diagnostic tests. Today, India is one of world's largest producers of personal protective equipment, and we developed testing platforms and strategies. These innovations were successful because of academia and industry working together. More researchers venturing across the line might help strengthen this.

We have the ability to rise to the occasion and the time to do that is now. This sangam should not wait for another pandemic.

Section 1

Careers in Research and Development

Research & Development (R&D) forms the backbone of long-term success for most biotechnology companies. This field is responsible for the development of new products and technologies, as well as updation/ upgradation of existing products and technologies. Those working in this field must practice continuous innovation and systematic progress to meet market-driven research targets. For a researcher who wishes to continue doing bench science, but hopes to see immediate and direct impact of their research on society, transitioning to this vertical can be a great option.

Shashwati Basak

Head, Quality, Immuneel Therapeutics Ltd

Shashwati Basak has a PhD in Molecular and Cell Biology from the Indian Institute of Science, Bangalore. She carried out postdoctoral research from The Salk Institute for Biological Sciences, San Diego and Stanford School of Medicine, Palo Alto. She worked as a Research Scientist in the Veterans Affairs Medical Center (VAMC), San Francisco on multiple projects involving translational research in cancer. Shashwati relocated to India in 2009 and joined Biocon Bristol-Myers Squibb Research and Development Center (BBRC) in the Early Clinical and Translational Research Department. To gain more experience, she moved to Aurigene Discovery Technologies in 2017 as an Associate Research Director and Head of Translational Biology. She is currently working as Head, Quality in a start-up called Immuneel Therapeutics Ltd in an endeavour to bring affordable cell and gene therapies to the Indian patient population.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

First and foremost, in academia, there is freedom to explore any basic question in science and the researchers/PI are not bound by the company's goals or vision. But, in industry, one has to keep the vision of the company in mind while applying for jobs initially and also while working later on, so that there are no surprises. Secondly, academia works in areas of basic research, while the industry might pick up ideas from basic research, but eventually has defined focus areas within a particular research field. For example, a company whose main goal is drug discovery and development will focus primarily on disease biology and specific drug targets.

What does an average day look like?

This is another point of difference between academia and industry. In academia, let's say as a postdoc, one would have a lot of freedom to design an experiment and perform it to answer a particular question. In the industry, the work is extremely time-bound, the budgeting is strict and one has to plan all experiments accordingly. In the industry, the candidate has to spend a lot of time in planning an experiment first and then implementing it, so that one can optimize the work as best as possible. So, when the day starts, in academia one may have the entire day (and entire night) to do the research work, while in the industry, one has to be very efficient in time management.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

Conferences and seminars are excellent sources of networking. The industry booths, especially, are a good way to get in touch with the right people. One can also drop in their cards/resumes at such booths since industries are always on the lookout for fresh talent. In fact, many times, such booths are set up for sourcing new candidates, especially at conferences. I think students should be vigilant and not remain confined to the conference hall. They should explore other areas, not only to build their network but also to learn about contemporary techniques/platforms.

Basically, students should be open to learning. If one is interested in working in regulatory affairs, for example, then they should try and attend some conferences/seminars related to that. They should not pick conference topics based only upon their MSc thesis/PhD topic, but should also explore other fields. In cases where the PI might be reluctant to sponsor such visits and the student may need to spend their own money, I believe it would be money well-spent, from a future point of view.

Secondly, one should look up human resource (HR) managers on social media platforms such as LinkedIn and write to them. They may not reply right away, so one needs to have some patience. It is all about how one establishes the connection - even if it is just exchanging emails or messages on LinkedIn, one has to be consistent and thorough. One cannot write to an HR person today and expect to get a call tomorrow. There needs to be some effective building of communication over time.

I think some companies have internship programs, and many of the interns eventually get absorbed into the industry. Additionally, if students are able to find industry mentors, that will definitely help.

Having said that, I also feel that in India, there is very little collaboration between academia and industry. So if the ecosystem is improved, then it would be even more beneficial for the academicians who want to transition into the industry.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

Firstly, one has to be very business-minded while working in the industry and that is something that students never think of. Even as a postdoc, one doesn't think so much about the money that is being spent on the experiments (especially if a grant is written by the Principal Investigator (PI), and not by the postdocs themselves). But in the industry, every penny counts and one has to keep the profit margin in mind. One cannot fail in experiments too many times, because that takes a toll both on time as well as budget. So one has to be disciplined and have good time management skills.

Secondly, in the industry, one has to develop a cooperative mindset. In academia, even though there is teamwork, there is still an attitude of 'my thesis', 'my publication' etc, and even if there are multiple authors on the publication, one still gets to bask in the credit of being the 'first author'. In the industry, one needs to let go of this attitude since the entire work is cross-functional and the work moves systematically in a pipeline. So the mindset has to change from 'me' to 'we'.

Thirdly, in academia, one is driven by passion and curiosity, while in the industry, it is more about competing in the market.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

One advice that I would give is to learn as many techniques as possible, especially skills that are contemporary or futuristic. For example, any person who had mastered whole-genome sequencing techniques ten years ago must have been really well off in the last ten years. Similarly, going forward, we are now looking at data analytics, which is the future. While a student is still in academia, they can learn a variety of techniques and skills and then apply themselves based upon the requirements of the industry. For example, even if one is working in the department of electrophysiology, they should

extend themselves and learn other techniques. Drug discovery R&D in the industry is all about utilizing the contemporary skills and technology platforms that are available, so the more a student has a repertoire of this, the easier it is for them to survive in the industry.

How can someone present their profile effectively and make their presence felt (CV, interview etc.)?

It is advised that the students go through the company website quite thoroughly and understand the company's focus areas. They should check if those are aligning with their skills and work on their resume accordingly. One is free to list all the skills that one has, but while presenting themselves through a CV or interview, only specific skills should be highlighted.

Students should actively spend some time in articulating their resume. It should be personalized according to the different job profiles. They should avoid using a standard format everywhere. Usually, companies prefer short resumes. So it's important to highlight one's skills and experiences in a concise manner. In the industry, the CVs are usually screened by the HR team, which has team members who do not have the same educational background, so the candidate has to keep this in mind and use keywords that match with the job description.

One experience that could be highlighted is interdisciplinary collaborations that the candidate has already been part of during their academic career. Since cross-functional collaboration is very important for the industry, such an experience will definitely help the candidate stand out in the CV selection/interview process. Ultimately it is all about presenting one's experiences in a positive manner.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

A career trajectory in India differs slightly for a fresher at a doctorate level and one at a masters level. If the role requires a subject matter expert in a certain field, then a doctorate would be preferred. A masters-level candidate might need to work a little bit longer to reach the position of a fresher PhD level. Alternatively, a master student with a consistent and long experience in a skill area that matches the company's interest would be hired/promoted over a fresher PhD who might not have as much expertise in that particular area. So, both masters-level and PhD-level candidates can match their career trajectories up to a certain level, depending upon an individual's performance, but the types of roles that they are eligible for will differ.

The trajectory also depends upon where an individual's interests lie. If one doesn't want to be confined to the bench for whatever reason, then a lateral shift is possible wherein one can move on to project management, regulatory affairs, quality assurance, business development etc. This also depends upon whether the company is willing to support this trajectory, so one has to be open to all possibilities. It's a balance

between what a person wants to do versus the time they want to spend in achieving the same.

What are the key evaluators of performance & success and how are they different from academia?

The performance evaluators depend directly upon the goals envisioned, both in academia and industry. In academia, it's a very personalized goal, so the success is measured in terms of the PI's publications, grants etc. In industry, it's all about the company's goals. So there are no personal publications as such since the Intellectual Property (IP) belongs to the company. There is a quarterly evaluation and one should not take it too much to heart, since the entire company's performance counts, and it's not the responsibility of a single individual. Performance is measured against the company's goals and if someone has contributed more than their job description, with respect to time and budget management etc. then they will be given some bonus points.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

I believe that as such there are no hurdles - one can turn any hurdle into an opportunity. If any hurdle arises, one should utilise it as an opportunity to reflect upon their choices. For me, after moving back to India, there was an option to apply to academia as well as industry and I applied to both. But, eventually, I decided that with two small kids, it was best for me to have a 9-5 job, rather than writing my own grants and spending time over it. So, I chose industry at that point. Secondly, all said and done, unfortunately, an entry-level researcher in academia is still paid lesser than one in industry. So, that was also a deciding factor for me - whether I wanted to spend so much time without getting remunerated effectively for it.

Thirdly, another hurdle was my area of interest. Although I was looking for a particular position in R&D, I did not find it. Eventually, I found a job that focussed only on one of my skills, but I still took it up. That risk worked out very well for me because that led me to the area that I eventually became interested in - clinical biomarkers and disease development. My current job came to me after a year of just sitting at home, out of the blue. So, my sincere suggestion to all candidates out there is to have an open mind and take up every job, no experience goes waste.

Lastly, balancing work and family is always a hurdle, regardless of whether one's a man or a woman. I think getting support is very important, whether it's for domestic work or to look after the kids. But it depends upon an individual's priorities and what they would want to choose.

What keeps me motivated are two main things - a passion to learn new things and my financial responsibility towards the family.

What is your mantra for success?

Be happy with whatever you are doing. Happiness is an inner state of being, so the more flexible a person is, it is easier to be happy doing whatever one is doing.

Manjiri Bakre

Founder & CEO, OncoStem Diagnostics Pvt. Ltd.

Manjiri Bakre received her PhD in Cell Biology from the Indian Institute of Science, Bangalore in 1998. Post her PhD, she worked at the Mt Sinai School of Medicine, NY and at Moores Cancer Center, University of California - San Diego, CA on diverse cellular signal transduction areas. In 2003, she moved to Genome Institute of Singapore and worked on human embryonic stem cells and cancer stem cells. Manjiri moved back to India in 2007 and led a group in cancer drug discovery in a biotech company followed by multi-disciplinary research on 'point-of-care' diagnostics at Philips Research in Bangalore and The Netherlands. In 2011, she founded OncoStem Diagnostics Pvt Ltd. focused on developing novel cancer diagnostic tests. She is a recipient of multiple awards including the Young Scientist award given by International Union of Biochemists and Molecular Biologists (IUBMB, 2006). Best Entrepreneur award (Meera Kaul Foundation, 2016), and the Entrepreneur of the Year award from Indian Achiever's Forum (2021) amongst others.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

The most important difference is time management. In an academic environment, students are wired to work 24 hours a day. So things are taken in a light manner, in the sense that they can be flexible about their timings since academic projects are usually individual projects. They don't need much interaction with colleagues, which is the second primary difference while working in the industry. One needs to work with different kinds of people and be available according to their time schedules.

What academicians need to understand is that in the industry one needs to work as a team and one person alone cannot complete the entire project. These values - time management and team spirit - need to be inculcated in students during their academic careers (PhD/Postdoc) itself. Thirdly, a PhD or any academic career gives a very uni-dimensional focus since the 'science' of the project is the primary focus area. Very little thought is given to the applicability of the project since most projects are basic science oriented. In the industry, the application of that science in real life is more important. One needs to be aware of what the market and customer needs. So, it's a multidimensional approach in the industry.

What does an average day look like?

In academia, the average day is extremely straightforward - a person would work on their own project the whole day, and take short breaks in between for lunch, coffee etc. Maybe there is a lab meeting once a week. In an industry, during an average day, one has to be part of stand-up meetings to go over issues faced in the past week. The meetings are usually brief and punctuality is of utmost importance. There is a certain decorum and professionalism, wherein nobody takes offence at frank discussions and there are no casual conversations either. Then, one goes to work on different projects during the day. They could be quite diverse, for example, involving a mechanical engineer, a bioinformatician, a cell-biologist and a clinician working together. So, one needs to be extremely sharp in switching the mental gears. The average day in an industry basically involves a lot of meetings with solution-oriented discussions revolving around the execution of a particular project as per market needs.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

This is something that the engineering faculty in India has already started - academia and industry partnerships, wherein industry experts are brought into the labs and

they network with students on industry-oriented projects. Somehow, this has not yet trickled into the life sciences. So, this is something that needs to be initiated at the institutional level and the approach should be top-down. Students need to be trained to swim in the industry, they cannot just be thrown into the water and be asked to swim! This training can be done by bringing the connections to them, since students do not get that time to look for connections during their academic curriculum. If every big institute can start an academia-Industry partnership, wherein weekly seminars by industry experts are arranged, then students will get a lot of insights into the industry.

It would also be a good idea to introduce an 'Industry-academia course' where students can prepare themselves or at least get a taste of what it would be like to work in the industry. Internships are one way to get an idea, but since the industry is constrained, employing an intern is a huge burden on the industry at times and it's not possible to do justice to the student. Instead, a longitudinal program with seminars, focussed group and round-table meetings would be much more beneficial for both students as well as the industry experts.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

In the industry, one needs to bear a collective responsibility for the company. Maintaining a book/record of one's daily work is extremely crucial since that data might be used for auditing. This is the responsibility that one has to take on, not only for one's personal work, but also for the welfare of the company. Customer insights are important while developing a particular product, so if the customer needs it in a different format than what is available, then one needs to adapt the product accordingly. Ultimately 'customer is the king and the market wins'. This is a big mindset shift from academia and these aspects are not taught to students.

Secondly, one needs to develop punctuality and the habit of respecting someone else's time as well as deadlines. Industries work on deadlines and timelines. So, no matter how good a scientist one is, if they don't respect timelines, then that person cannot be relied upon to do anything.

Thirdly, developing attention to detail is extremely crucial. In academia, the consequence of a small mistake is the failure of an experiment but in the industry, any minor hiccup would lead to huge monetary losses and a big backward shift in the overall timeline.

What students need to inculcate in their minds is that in the industry, time is money.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

The most preferred qualities are: ability to multitask, respect for time and deadlines, ability to think in a multidimensional fashion with respect to science, and attention to detail. Secondly, getting a lot of hands-on experience already as a student (especially for undergraduates) is extremely important, since the industry does not have the time to train someone from scratch. Thirdly, students should keep themselves updated about the latest market trends. One can be a brilliant scientist, but if they are not aware of their surroundings, then it's hard to survive for long in the industry.

How can someone present their profile effectively and make their presence felt?

I would say that your CV should be as short and succinct as possible. For example, instead of putting in all the publications/posters presented, it's better to present only the most important ones in a noticeable manner. One should also present their non-scientific/non-academic achievements since the industry prefers candidates who are all-rounders.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

I worked in the industry in India only for 2-3 years before starting my own company. What I have learnt during my brief experience is that one does have an ability to grow but it all depends on what one wants to accomplish. If one is willing to be flexible with regards to the job requirements - travelling abroad, being versatile, working with the same efficiency regardless of location etc. - then that would help in carving a good career path. The trajectory normally proceeds from an entry-level scientist to a senior scientist to a group leader. Additionally, one can also have a lateral shift and move from one group to another and bring in a new dimension to the focus area of that group. If one understands science deeply, then they can apply it to multiple areas, especially when it comes to disease biology.

What are the key evaluators of performance & success and how are they different from academia?

The ability to take on new projects and think differently for each project is a measure that the industry would look at. For example, if a pure sciences researcher is asked to write an article about the company to be published on a marketing website, one needs to write in a language that the general public understands. So, having the ability to present one's science in a non-technical manner is another evaluator that the industry will value in their employee.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

After my PhD, I did two postdoctoral fellowships and worked in Singapore in an academic institution, after which I moved to India and worked in the industry for around 2-3 years, before starting my own company, Oncostem Diagnostics. Most of my learning experiences have been after I started my own company. Scientific experience is only one aspect of it, but finding the space, ordering reagents, getting investors on board, writing and getting patent approvals etc. are aspects that one never thinks of while working in academia. It has been an extremely fulfilling experience for me. There is never any dearth of activities or boredom in my life since there is always so much to learn. What I have picked up from my PhD experience is that PhD inculcates this habit of going in-depth into any topic. This helped me have faith in my ability to gain knowledge about new and diverse topics, especially topics that I had never even heard of before. Additionally, the curiosity-driven mindset, the passion to learn new things - the very qualities that are part of a PhD journey - are also what keep me motivated in my current journey.

The pros and cons actually depend upon what one wants to achieve. I wanted to move from basic science to applied science since I was more interested in applying a scientific concept for the improvement of human life, while many of my friends and classmates have continued to work in basic science since they loved interacting with students in an academic setting. So, it's a very subjective and personal decision - there is no right or wrong per se. If you ask me, personally, I like working in the industry because I am interested in bringing the technologies into real life.

What is your mantra for success?

If you can put your mind to a particular task, and align your focus accordingly, you can succeed at anything - it's just a matter of having that conviction!

Section 2

Careers in Entrepreneurship

Entrepreneurship allows one to set up their own enterprise to bring an innovative idea with strong commercial potential and societal need into fruition. The startup ecosystem in India has been growing rapidly over the last few years, with the help of funding, mentorship and infrastructural support from funding agencies and startup incubators. Entrepreneurship is a great driver of innovation and for self-driven researchers with great ideas, good market understanding, and reasonable risk tolerance, it can be an interesting space to transition into.

Fathima Benazir

Chief Scientific Officer, Azooka labs

Fathima J Benazir is a Molecular biologist from the Indian Institute of Science. She is the Chief Scientific Officer and Co-founder of the deep-science startup, Azooka Labs. She also heads the R&D division designing and developing a fluorophore library for the study of molecular components. She was recently awarded the National Startup Award for the Best Women-led enterprise (2020).

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

Usually, there is no business urgency in academia, since most of the work is covered by the grant and publications are the final outcome. However, in the industry, there is always a business urgency. So, the research has to be focussed on a favourable outcome that will boil down to sales or licencing or product development. So, while in academia, research goes on at its own pace, in an entrepreneurship set up, things are quite time-bound and any risk/failure has to be borne by the entrepreneur. There is a certain level of freedom for experimentation; however, one needs to develop a knack of embracing the failures and turning them into positive outcomes.

What does an average day look like?

A good amount of time during the day needs to be invested in financial work and legal issues. Apart from that, I would say, at least 20% of the time needs to be devoted towards reading the technical literature as well as business articles, to keep oneself updated about the current technological advances. Around 30-40% of the time goes in planning experiments and troubleshooting with the team.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

Ideally, one should not restrict themselves to their own topic of research. One should register themselves on online platforms such as ResearchGate in order to get in touch with other scientists. It is also important for students to attend webinars and conferences, wherein they can start building a network and also connect their own research to the latest issues. As far as social media is concerned, I think LinkedIn is a very focussed platform for professional networking. Other than that, one can also be part of forums like academia.edu. Additionally, participation in co-curricular activities such as hackathons can also help one build a network. One may even end up finding a co-founder since usually in hackathons people from different backgrounds are clubbed together in a team. Furthermore, memberships with Association of Biotechnology Led Enterprises (ABLE) and participation in programs such as India Innovation Growth Program 2.0 - University Challenge can provide funding for ideas to prototype and give a lot of exposure.

As far as the role of mentors is concerned, I feel that mentors are people who broadly guide the students so that the focus is not lost, and yes, they can connect their students

to professionals within their networks. However, ultimately it is the individual's interest and hard work that plays a role in developing and building the network. A mentor may lead their student to a connect, but how well the student builds the relationship from there is left up to the student.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

I think, to be very honest, one cannot prepare oneself to become an entrepreneur. However, the first thing that an academician who is aspiring to be an entrepreneur needs to accept is that one cannot do it alone. Hence, it is advised that an academician should find a partner/co-founder and a team who is good at marketing and has business acumen. An academician's mindset revolves more around the ingenuity of their technology; however, in order to understand what a customer/user needs, one has to get an alternative perspective so that strategies can be planned accordingly.

Secondly, what I can narrate from my experience is that since we started interacting with our end-users from the first day itself, their feedback was incorporated in the product development and this helped us identify the problems at a much earlier stage. Every researcher/academician has this attitude of first bringing the technology towards completion, making it fool-proof, and then checking for any problems. This results in a lot of time being wasted. Additionally, in this scenario, one may also realize that there are no takers for the technology that they are providing. So, this mindset change of involving the feedback of customers/users from day one in the product development needs to be implemented. Thirdly, one needs to be legally compliant and ensure that there is a sufficient source of funding for the start-up.

In this sector, one needs to wear multiple hats - this is true not only for entrepreneurs but also for those aspiring to work in start-ups.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

As far as working for start-ups goes, I can speak for my own company (Azooka LifeSciences). We would prefer candidates who are collaborative and have a bioinformatics-first/data-first approach towards research because it accelerates the wet-lab research significantly. We would also prefer candidates who can participate actively in key discussions and webinars, as well as are part of scientific communities like ResearchGate, Genomeweb, Labtech, academia.edu etc. Candidates that are technologically well-versed with the latest tools and are updated with the latest cutting-edge topics of discussions are most preferable.

For candidates who mostly prefer wet lab work, I would say that although there is a 80-90% focus on science while working in a start-up, it is imperative to have at least a 10-20% focus on the market requirements. This is because if one is unwilling to have discussions with the users/customers, then they can never build an efficient product

that the customer needs. Educational qualification is not a barrier per se, because start-ups are looking for candidates who can quickly adapt to the new technologies and the changes faced in a start-up.

Also, a candidate with effective scientific communication is highly valued, especially someone who is able to explain the technical/scientific terminology to the layman. Nowadays, even journals like Nature are encouraging the use of artwork and creative captions in their usual publications, but I feel there is a dearth for these kinds of scientific writers.

How can someone present their profile effectively and make their presence felt?

The CV can highlight contributions to open-source discussions on online forums (such as the ones mentioned above). Participation in co-curricular activities like hackathons can also be highlighted. If one aspires to be an entrepreneur or work in a start-up, participation in such activities would really add value to the CV. When it comes to giving an interview, there are some significant differences as compared to that of an MNC. In an MNC, the candidates are chosen mainly on the basis of focused technical expertise, since they are selected for a defined role in the company. Whereas in a start-up, the candidates are also chosen on the basis of their leadership qualities, whether they are open to learning new things, are self-motivated and can wear multiple hats. So, more than the qualification and skill-set, the attitude that an individual carries with themselves receives more weightage.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

Working in a start-up is not as financially rewarding as working in an MNC, but the career growth here is definitely much faster. I can speak for my own company - the environment is such that there is not much of a hierarchy, and even a fresher gets to contribute to all the key discussions. So, if an employee performs well, they are able to move up the ladder pretty fast and grow with the organization.

So, the career trajectory in a start-up is quite exciting since the candidate gets to realize where their passion lies.

What are the key evaluators of performance & success and how are they different from academia?

Let us consider the example of a product manager. Being able to independently deliver a minimal viable product that tests well within the company's in-house lab environment is considered to be a success. Apart from that, other factors such as how quickly they can roll out a product to their team, how effectively the team is managed, and in case of any failures, how quickly the troubleshooting is done are also parameters that can

be used to evaluate the performance. For a product-based company, the key evaluator will always be whether the candidate has been able to effectively deliver a working product. In a service-based company, the number of services that are delivered effectively and customer satisfaction would be the key evaluators.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

We started Azooka in 2015, although I have been working on this product since 2013 itself, while I was still a postdoc. For me, science has always been fascinating, and like every other academic researcher, initially, I was only targeting publications. Then, Alex D Paul, my co-founder who was also my classmate, changed my perspective towards research and my work. In a casual conversation with him, I realized that all of my hard work was only getting buried in big books and that really made me think. Then, he motivated me to build this start-up where I could use my research for the betterment of society.

From then on, there were a lot of challenges - there was some opposition from the family, since there was no job security in the beginning. Also, we needed to take a lot of efforts to understand all the legal compliances, for example, the company structure (Limited Liability Partnership (LLP) or Pvt Ltd.) that would allow us to get investments etc. Secondly, the biotech product ecosystem in India is still quite nascent and evolving, since most companies are project-oriented or contract research organization (CRO)-oriented pharma companies. So, in the beginning, it was difficult for us to mobilize resources and hire people. At times, we also encountered a non-collaborative mindset which made things difficult. Another hurdle we often face is getting the sustained interest of investors in our products. The initial interest would get lost in the long gestation period since they didn't really understand the work.

So, I think the longer product development time and a longer route towards regulatory compliances are definitely some of the biggest challenges which can be considered as cons for a product-based start-up. Secondly, working in a start-up may not be as financially rewarding as that in an MNC. Failures are also abundant, but as a researcher/scientist we have learnt to embrace failures. At the end of the day, what keeps me motivated is to see my research getting translated into products which can actually improve human lives.

And personally, I also feel that challenges make one's journey more exciting. So yes, overall it has been a very enjoyable journey.

What is your mantra for success?

I believe that if you want to be truly successful, you should accept that you cannot do the magic alone - teamwork always wins.

Praveen Vemula

Principal Investigator, Institute for Stem Cell Science and Regenerative Medicine (inStem), Bengaluru

Praveen Kumar Vemula completed his Masters in Chemistry from Osmania University and obtained his PhD from Indian Institute of Science, Bangalore. His expertise is in developing chemical technologies for medical applications. His work spans the fields of biomaterials, drug delivery, medical devices, and chemical biology. He has published >70 peer-reviewed papers, has given >150 national and international invited lectures including two TEDx talks, and has >25 issued or pending national/ international patents which have been licensed to multiple biotech companies. Several technologies developed in his lab have formed the foundation for multiple products on the market and currently under development. His technologies have led to the launch of five companies including Sepio Health (anti-pesticide technologies company, in India), Artus Therapeutics (a drug discovery company for IBDs, in USA), Skintifique (a skincare company, in France), Alivio Therapeutics (an inflammation targeting company, in USA), and Color Threads (innovative textile company, India). Thus far, 12 products that are developed based on his technologies are in the market worldwide.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

There are differences on multiple levels in terms of the availability of resources, the time and the development process. As a PhD student or postdoctoral fellow, one has a lot of freedom to follow diverse topics and then let the work take any direction it wants to. But, in the industry setup, the goal is defined, one only needs to figure out the path and do whatever is necessary to reach there. This is one major difference. Similarly, there is a lot of difference in the timelines. In academia one is very relaxed and has the luxury to spend a lot of time exploring, since there are no fixed deadlines as such. But, in the industry there are daily and weekly targets to be achieved. So, one needs to have the day systematically planned in such a setup- the bigger deadlines need to be broken down into a realistic timeline and this needs to be maintained every single day.

What does an average day look like?

A start-up is like an amalgamation of academia as well as a big industry, so there is a blend of both cultures. So, there is work to be done on an exploratory/research level just like in academia. But, since the team is very small, one gets to work with a range of people- right from technical experts to business developers. So, one day might be full of technical discussions, while the next day, there would be a lot of strategic discussions and decisions to be made.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

One of the most important things is to make the decision as early as possible. If one wants to work in a start-up, then they need to know why they want to work there. This will help the student understand how to go about in making the transition and building the network. For example, if one wants to do a translational/applied research, so they can search for experts accordingly. Places like Cellular And Molecular Platforms (C-CAMP) in Bangalore have an incubation hub for upcoming start-ups, with a wide range of networks consisting of scientists, entrepreneurs, business development professionals etc. So, if one is interested in either starting their own venture or working in a start-up, it's good to get connected to conglomerate places like these and have an open discussion about their transition plans. This can help one get connected to the right set of people- it's all about knowing right people at the right time! It's good to start developing these connections earlier on, to understand the landscape and opportunities available. Secondly, while connecting with someone (either an individual person or an organisation), it's always better to have a clear conversation about what

one hopes to get from them and vice versa. Then, one can have a better chance of building a network.

I think mentors play a huge role for an academician who wants to transition into science entrepreneurship. It's important to reach out to them freely, pitch an idea and then learn from the mentor's experiences.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

One of the biggest differences is that in academia, it's an individual idea that one works on and gets credit for. Whereas, in the industry or a start-up, one has to be open to sharing their ideas as well as credit. I can narrate with the help of an example- in academia an individual usually publishes data that he/she has obtained based upon their individual expertise. However, in an industry, it is advised to seek external advice and help, so that an idea is translated effectively. In order to do this, one has to identify relevant people, work together, have a clear communication and also share the credit accordingly. The process of both- owning an idea as well as sharing it, is a collective process. Another main change is that, in order for an idea to be translated, one should also have knowledge about generating funds, forming a company, getting the patents approved etc. At the end of the day, the goal is to solve a problem, rather than one individual getting the credit.

I believe that bringing any technology into the market involves a three-way process: conceptualization, actual development/execution to make the technology industry-ready, and having the network of production and distribution so that it can reach the end-users. It's important to identify the right partner organizations for each of the three sub-processes.

Also, as a budding translational scientist, it's always important to know that one has to keep expanding their boundaries and learn new subjects. For example, learning how to draft a patent can significantly improve the quality of the patent as well as get the scientist well-versed with all the legal terminology.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

I think there are multiple avenues to develop the skill-set - knowledge hubs and incubation centres conduct several training programs and workshops. So, one can enrol into such programs in order to gain the necessary skill-set. It's also important to have open conversations with one's mentor at an early stage while one is still a student and express one's interests regarding future career options, so that the mentor can give them a chance to be part of networking opportunities accordingly. The important advantages of attending such workshops is that one can learn along with building a network.

How can someone present their profile effectively and make their presence felt?

One needs to have clarity about two things - what one is expecting from the company and what one can give back to the company. For a start-up, one is expected to contribute as well as learn from not just the technical areas but also the non-technical ones. So, if one is willing to grow and learn in different areas, then that needs to be highlighted in the interview. But, if one is looking to contribute to the company only in the form of technical expertise or planning to stay in the company only for a short while to get a learning experience, then that also needs to be discussed explicitly during the interview, so that expectations can be set from both ends early on. If things start on good terms, the company can enhance one's experience and then help the person find their next job through their own connections.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

As a co-founder, CEO, CFO or technical officer, one has a lot more responsibilities and has a bigger journey and trajectory. If one joins the start-up as a team member, the trajectory can take several directions, based upon the person's expertise. One has an opportunity to expand their existing skill-set tremendously in a start-up, since they are constantly learning from different set of people. So, they can enter the company with a specific skill-set and leave the company with a lot more, which gives them an edge over other candidates if they want to join any other company in the future. For example, one can join as a scientist, then move on to a managerial or a business development role pretty fast. This is especially relevant for candidates who have a clear idea of the direction they want their career to take- they can consciously put efforts to learn new skills and can get the opportunities to do so, in a start-up. In general, the more one is able to multitask, the better his/her chance of rising up the ladder.

What are the key evaluators of performance & success and how are they different from academia?

In a start-up, there is a finite timeline to achieve goals, so being able to deliver goals on time is definitely one of the main performance evaluators for any candidate. The daily or monthly hours worked by the candidate don't hold as much importance as the final delivery. This is completely different from academia, where success is measured also for trying out a particular solution.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

I can speak from the perspective of a science entrepreneur. I came to India after a postdoc of 8 years. My lab is primarily focussed on developing technologies for medical applications. Based upon the technologies, we also search for relevant industries/companies and hand-over the licensing, co-developing and marketing to them. Alternatively, we may also form start-up companies with the help of a small team, hand-over the licensing and patenting to that company, so that they can bring the technologies into the market. This way, we focus on not only developing the technologies but also bringing them to the end user.

Fortunately at InStem and Bangalore life sciences cluster, the ecosystem is such that we are provided with a lot of infrastructural and institutional support, including development of policies that support the incorporation of new start-ups. What we have learnt is that, translation of scientific ideas, although challenging, is smoother if one is able to decide the goal earlier on. So, what we focus on is identifying a problem area which has a huge unmet gap, and then develop technologies in such a way that the gap is filled. This ensures that we develop a very strong intellectual property, since in a start-up, your IP is your money.

I believe that it's important to find the right set of people, especially a co-founder, who has the same passion as you do, to take the technology ahead. This way, even if ten ideas fail, there is sufficient expertise to find an 11th idea. Whereas, with the wrong set of people, even a fantastic idea can be killed overnight. I am fortunate enough to get such a team at InStem. For our anti-viral masks (G-99 masks), we were able to make many significant decisions virtually, which resulted in accelerating the process. Also, my experience of being involved in previous start-ups helped in making quick decisions.

One of the motivating factors for me is that, via a start-up, we are able to create many job opportunities. However, as a translational scientist, the biggest joy is to see our idea getting translated into a technology that can improve people's lives. I really don't see anything as a con. But, if we compare it to an academic setting, a lab typically focuses on a niche area, and the entire academic recognition comes via being a specialist in that area.

However, translational scientists tend to explore any problem that needs to be solved, without restricting themselves to any specific area. Our lab focuses on defocusing, our goal is only to solve the problem and bring the technology to the market. From a conventional academic lens this can be a con, but we don't view it like that. Similarly, the large amount of leg-work that one needs to do in a start-up as opposed to an MNC, might be considered as a con by some.

What is your mantra for success?

I think when you put problem solving ahead of your personal goal, then your success as an entrepreneur is guaranteed.

Section 3

Careers in Sales and Marketing

Industries exist in the commercial space and in order for technologies and products to succeed in the market, the support of dedicated sales and marketing personnel is essential. Strategic marketing ensures that the products and technologies created by an industry actually reach those who need them most. Those working in this sector need to have a sound knowledge base regarding the company's products, as well as a thorough understanding of market forces. For researchers who enjoy interacting with new people and who are interested in ensuring that innovative technologies reach the public quickly, transitioning into this field can be a viable option.

PRAVEEN GUPTA

Managing Director, Premas LifeSciences

Praveen Kumar Gupta is the fountainhead, visionary and Managing Director of Premas LifeSciences Pvt Ltd (PLS), a young and dynamic organization aiming to bring cutting-edge Lifesciences technologies for breakthrough research and clinical diagnostics in India. Praveen completed his Master's in Genetics from Pune University and found his calling in Sales & Marketing with a management degree from XLRI, Jamshedpur. His stints at Ranbaxy, Dr Reddy's lab, Life Technologies Inc, Biorad and DSS have been instrumental in the journey of setting up his own company, Premas Life Sciences. With a rich experience of over 2 decades in the diverse fields surrounding biotechnology, he has carved a niche for himself as an industry leader.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

There is a good amount of similarity in the vision of both industry and academia which is to achieve innovative outcomes of their R&D, but the route adopted in doing so may vary. In academia, one is working independently, while in industry, the work is mainly collaborative. It basically means that there is more autonomy in an academic setup while in an industry, any decision is taken with multi-parametric consideration from different departments.

One of the main differences is also about the pressure of delivery. The industry is more Return on Investment (ROI) driven as compared to academia. Hence, a "delay to deliver" has ramifications. There are strict timelines in academia too but that doesn't come along with consequences. The industry revolves around your investors, who have likely invested a lot of money in your project and are looking for a handsome return on that investment. Therefore, you do not have the luxury to work on esoteric ideas (as you would in academia), especially since you need to be able to show the relevance and outcome of your project. In academia, there is no concept of measuring a return on investment.

The second key difference is that in industry, there is a fixed budget. While in academia, there is a fixed budget for a research project as well, the PI can still arrange for funds in some way or the other. However, in industry, that is not the case. Lastly, in industry, every project begins and ends with relevance to the commercial market. Therefore, if one has a unique idea which can be patented, one starts working with patent lawyers even when the idea is still in its nascent stages and the product is developed accordingly. In academia, there is no concept of market-study or market-feasibility.

What does an average day look like?

We at Premas Life Sciences do not conduct Research & Development (R&D) (that is undertaken by our sister company: Premas Biotech), but rather provide technical support to scientists by partnering with leading global technology solution providers. Our goal is to assist breakthrough research and clinical diagnostics in the country by bridging the gaps between real-time pain problems faced by the research community with the utilization of niche game-changing technologies.

Let's have a look at the ideal day of two different job profiles within the technical support specialisation: technical sales expert and field application specialist.

An ideal day of the technical sales expert would be to identify potential customers in their assigned geographical area and/or technical area of expertise. This can be done by searching for specific research topics and researchers via PubMed or Google Scholar. The next step would be to schedule a meeting with the customer and convince

them that there exists a better technology which they can use to get their work done faster. If things proceed well, then the technical sales expert would get in touch with the respective sales team at the customer's end.

After the technology has been sold to the customer, the customer needs to be trained to utilize the technology and/or may need troubleshooting after they have started using it. This is where a field application specialist comes into the picture. He/she schedules a visit with the customer, works with them, performs the relevant experiments with the relevant people working on the technology in that institute: PhD students, PIs, technicians etc. Along with troubleshooting, there could also be discussions of new ideas/applications of the technology.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

If a postgraduate/doctorate student is keen on pursuing a career in technical sales or marketing or applications and wants to know more about how a product-based organization (like Premas Life Sciences) functions, the first thing that they can try is to request their professors to arrange a visit with some industry personnel, and probably attend some large Industrial trade shows or virtual events.

Secondly, networking and communication are not just about verbal skills but also require an ability to connect with people as well as to appear earnest and sincere in one's conduct. It is always better to do your homework before meeting a person of interest, even if you are acquainted with them beforehand. And in case you don't know the person first-hand, it would be better to approach them via a third person whom you both might know, so that the person would be more receptive towards you when you meet them.

Two absolutely non-negotiable aspects of building networks are: learning the art of developing an 'elevator pitch' and marketing oneself in the right manner. When it comes to an elevator pitch, it is important to build the conversation around the person of your interest, instead of making it about yourself. Social networking websites like LinkedIn, Facebook and Twitter can also be extremely useful when used wisely.

And of course, it goes without saying that having the right industry mentors is paramount at an early stage in one's career, as a deeper insight into the functioning of a life sciences industry is difficult to obtain within the regular university curriculum. Even if one doesn't find any mentors, it's a good idea to watch YouTube videos and TedX talks by eminent industry professionals in order to get an insight into the field.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

The first change, as I mentioned earlier, is the development of a collaborative mindset. Along with this, one needs to be extremely open-minded about the people they are working with and develop a holistic attitude. For example, a biologist working on drug development may need to collaborate extensively with a chemist, a formulation expert, a marketing expert, a logistics expert and a product development expert, to understand the feasibility and outcome of their project.

Furthermore, having a thorough knowledge of the commercial market (the current scenario, the existing gaps, as well as the competitors) is extremely crucial. Lastly, one needs to be deadline-oriented and understand that market dynamics play a huge role in shaping the direction of the project. Unlike academia, one cannot ponder endlessly over open-ended questions but rather needs to build flexible timelines. At the same time, one needs to be adaptable enough to change the strategy of the project midway if the market conditions and requirements change.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

Let's take an example of a technical sales expert. The most important trait is the ability to communicate science effectively. However, when we talk about 'technical', it goes without saying that the person should have in-depth knowledge about the technology/product that they are selling. They must be analytical enough to map the needs of the customer and suggest the best solution to them. This means knowing a particular scientist/PI/clinician's research application area and how that particular product can accelerate their work in a better, faster, and cheaper way. So, the two main qualities required here would be knowledge of science and good communication skills. Apart from that, the most important component is to have drive and passion. Someone who is not keen to meet and interact with new people would not be the right person for this job.

How can someone present their profile effectively and make their presence felt?

In order to prepare an effective CV, one should take care of not just the content, but also other seemingly non-essential things, such as font size and type - they should be appealing to the eye. Secondly, what catches the attention of the hiring manager is how well one has highlighted their traits. For example, for hiring a genomics expert as a field application specialist, one would look for the right keywords such as molecular biology, PCR, NGS, etc. Thirdly, one should modulate their CV while applying to different types of jobs, and should not have the "one size fits all" attitude.

The most essential aspect of presenting one's profile and making themselves stand out in interviews is preparing themselves thoroughly when it comes to the job requirements and the company profile. Secondly, one's body language should convey their passion and interest for the job, along with an urge to improve themselves.

If you ask me, personally, I always look for three things when I hire someone: Attitude, Skills and Knowledge (the ASK principle). Lastly, if I am interviewing someone who has thoroughly read my profile and/or my articles, and based on it, if they can earnestly do some value addition during the interview/discussion, there is a high possibility that it may definitely hit my attention.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

Exciting. There's never a dull day for the one who enjoys interacting with technical people and loves travelling for work. Whether it's a technical sales expert or a field application specialist, one basically starts off by being an executive. After that, growth is possible across several dimensions:

1. One could aim to become an expert in their domain: start off as a technical sales expert for part of Delhi (say), then after two years, covering the entire city of Delhi, and maybe after five years, covering the entire northern part of India. Gaining a 360 view/knowledge on the products as well as accounts in the region is the key.
2. Expand your range of products and/or companies over a time and engage with diverse users apart from the niche for exploring new markets.
3. Become a manager: lead a team towards specific goals and keep track of the timelines.

However, it is important to know that ultimately, no matter what company one works in, one has to take up a sales/commercial role in order to grow to the highest level. So eventually, even a field application specialist has to take up a techno-commercial role where they can combine their technical knowledge with their commercial acumen in order to rise up the ladder.

What are the key evaluators of performance & success and how are they different from Academia?

Being on top of the current job function is absolutely important, along with an ability to demonstrate that one is able to accomplish their tasks fast enough to take up additional responsibilities. For a technical sales expert, the key performance indicators/evaluators would be technical expertise and ability to transfer knowledge seamlessly along with great communication. Also important would be- achieving the sales target, evolving a good rapport with the customers, and having a thorough knowledge about the market

trends and competitions. For a field application specialist, the key performance indicators/evaluators would be technical skills, problem solving acuity, communication skills, ability to extract information from interactions with experts, and the ability to develop a commercial understanding of the space. Apart from that, reporting and attending to the problem on time is paramount.

And like I mentioned, the zeal and drive to constantly evolve in the role, is a subtle evaluator secretly aspired to by every team leader.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

I did my masters in genetics from Pune University and my entire batch went on to complete their PhDs, while I was the only one who chose sales as a career. Choosing a company and getting to know about it was quite tough at that time since back in 1992, one did not have as many resources and the luxury of the internet as now. Ranbaxy was a huge name at that time, so my basic tick-marks were in place: a big company that will be able to pay its employees on time etc.

That is how I chose the company and started my career. So, the initial path was almost accidental.

However, eventually, I realized my own strengths: decent understanding of Biology, good analytical and communication skills, ability to build rapport with people, and ability to learn anything quickly.

So, my path was always based around these skills and eventually, I moved on from diagnostics to molecular biology. That interested me even more since it was something that I had studied. There, I found my highest calling in the field of genomics, where I could combine all of my skills together and I found my mojo in the right kind of product lines. I also realized certain gaps in the industry and that's when the idea of Premas was born, to fill those gaps with my knowledge and expertise.

So that was and still remains my primary motivator and driving factor. I call myself a genomics evangelist since I like evangelising technologies. What keeps me going is the belief that I am yet to actualize my potential, to train and influence a lot of people, and to create an organization that can give back to the society.

Premas Life Sciences also runs a program called PLS-Connect where we try reaching out to biotechnology students from Tier 2/3 cities and try to give them an exposure to the industry.

The main con is that this is a very high-pressure job. Secondly, since one's success depends upon the team, even if you do your job well but your teammates refuse to

cooperate, you would be at a loss. Pros are many: one of them being that this kind of career gives you lots of opportunities to network and interact with the sharpest minds not just across the country but also, globally.

What is your mantra for success?

You have to be extremely curious of the unknown and have an ultimate passion for whatever you set your feet in. Like Steve Jobs said, “Stay Hungry, Stay Foolish”

ASHOK GOPINATH

Co-founder and director, TGB Diagnostics Foundation

Ashok Gopinath is the ex-commercial head for Illumina India. He led the commercial activities for Illumina in India from March 2014 until Dec 2018. He spent several years in leadership roles in Drug Discovery companies like Connexios Life Sciences Pvt Ltd, Genotypic Technology India ltd. and Sanofi Synthelabo. Previous to this, he conducted research projects in neurobiology in the prestigious Cornell University in Ithaca, New York, USA for several years. He has a PhD from the Dept. of Biochemistry, Indian Institute of Science, Bangalore, and a Masters degree in Microbiology from MS University in Baroda. He has a vision to extract the value in cutting edge technologies to improve the value of human life in India by increasing access of India's patient population to modern life-saving clinical practises.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

One can pursue a career in the commercial side of academic discovery and research, as well as the clinical and hospital segments. The challenges faced across both these segments are different, but the key difference compared to a career in academia is the need to develop communication skills. In academia, "the science speaks for itself", and data, when presented, can bridge the language gap between the presenter and the scientific community. So even if one doesn't know the language of communication (e.g. English) very well or is unable to deliver a presentation, they can still be a really good researcher. That is not the case if one is a technical expert in the industry. Here, your language and communication skills have to be excellent because talking to professionals from different educational backgrounds requires one to deliver information precisely. Secondly, in the research world, being an individual contributor is quite common. In the industry, this is less common with different specialists being involved in different aspects of a given issue.

What does an average day look like?

The average day starts with reviewing a daily or weekly plan, which can be further extrapolated to developing and/or modifying a quarterly plan and subsequently an annual plan. This plan would mainly include the landscape for opportunities and potential clients. This would then be followed up by making a detailed timetable containing different strategies to approach clients based upon the client's availability as well as the most favourable time for the sale of a particular product. The day-to-day execution depends upon the goals that are defined for that particular job profile, which are usually short-term, sometimes as short as one month. For example, an average day for a researcher might include preparing the reagents of a particular experiment and following it up with some reading, while for a salesperson, it might include ensuring that they meet the designated number of clients on that particular day and influence them at some level.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

Networking often involves observing one's surroundings keenly and utilizing them effectively. One meets people who might be important links in their networking chain at every stage of their life. A prospective commercial person would therefore cherish every encounter that they make. Personality traits that can really help here is a sense of

acceptance, curiosity and respect for every person and eventually viewing the world as an opportunity for building relationships. Invariably, these are the characteristics of an extrovert. Therefore, a career in the commercial world (sales, marketing, business development, etc.) comes naturally to extroverts. Having said that, one can be an introvert and be constructive and conscious in building their network as well. If one gets an early idea about their own disposition it would be easier for them to build a network accordingly. Eventually, mutual respect irrespective of educational qualifications is the crux of building a good network.

More often than not, mentors choose their mentees and not the other way around, so one cannot actively seek them. If one is inspired to learn and grow in the presence of another person, then the title of 'mentor' becomes irrelevant.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

In research, fulfilment of one's commitments depends on one's own ability to work hard and smart, while in the commercial world, the fulfilment depends upon the client and one's ability to influence them and their decisions. Secondly, it is extremely crucial for a scientist to keep their ego in check while transitioning into a career in sales, as here, understanding the client's needs is much more important than winning a scientific argument. Thirdly, one has to be extremely organized not only with respect to their product and their work but also in maintaining their network. The emphasis that the industry places on "proper practices" are stringent and binding with consequences being quite severe. Every industry has a culture that develops around these stringent rules and there may be a need to adapt to these cultures accordingly.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

My personal experience as a trained scientist transitioning into the commercial space says that one can never really prepare themselves for a career in the commercial space, one can only keep one's mind and eyes open towards the opportunities that come their way. The reason I say this is because sales is a profession where one has to be extremely adaptable. In the commercial world, your success does not depend simply upon your technical skills and training. One can have the best skill-set that is required of them in this sector, but if the person they are trying to influence develops a negative opinion of them, then those skills would be of no use. Thus, likeability and collegiality are some of the most crucial qualities that are required in a commercial person. Secondly, it is necessary for a scientist transitioning into the commercial world to develop the skill of translating complex concepts into simple language. Thirdly, a good commercial person would always keep their network engaged and active through constant interactions and be mindful of the client's likes and dislikes.

How can someone present their profile effectively and make their presence felt?

A CV is just an entry-point to an interview. It would either be used for a 'key-word' search (at the HR level) or a 'key-skill' search (at a higher level). But more importantly, for a CV, "less is more". Therefore, making a CV crisp and restricting it to one page would work the best. It would also help to have a decent font and photograph and one's accolades highlighted in an appropriate manner.

An interview is the real testing ground. Sometimes the interviewer might ask questions just to rile up the candidate - to understand whether the candidate is capable of handling high-pressure situations on-field and whether their expertise on the bench translates to on-field situations like dealing with tough clients. But the most important assessment in an interview is that of the attitude of that candidate - whether they are willing to learn, grow and contribute towards the betterment of the organization. In fact, many times, it is 90% your attitude and 10% your skills that contribute to a hiring decision.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

A good trajectory in sales would be to reach the level of a trusted advisor for clients, wherein one can have the assured loyalty of their clients. Apart from that, one can go on to sell more than one product in the same company and grow within the breadth of the network, eventually reaching a managerial position. Every company has products that can be of interest to several discrete commercial segments, e.g. clinical, research, agricultural, bio-pharma, consumer and lifestyle, etc. One can grow laterally by working in each of these segments. One can also move from sales into other allied sectors such as marketing, digital communications, or data analytics as part of the sales support team. However, the higher one goes in this hierarchy, the lesser the opportunities, and the challenges change as well. So one has to eventually take stock of their career goals.

What are the key evaluators of performance & success and how are they different from academia?

The hard metrics of performance are clearly spelt out in the industry. In an academic setting, a researcher might be considered for a tenure track and/or further promotion every 5 years, which more or less depends upon their age and other factors as well. However, in the industry, one is reviewed after every quarter. The metrics of sales is very clear - the sales target brought in the company at the end of every quarter will determine one's success. However, the amount of guidance that an employee needs from their manager in order to navigate and be productive as per the job requirements, is also an important evaluator of performance. The relationship between a good boss/ manager and a salesperson can be really dynamic, often changing on a daily basis and differing based upon the requirements of the clientele.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

If you ask me, anything can go wrong at any point in your life - life is not fair! The quicker one comes to terms with that, the better off one can be. If life is wonderful to someone, then it's only because they are some of the most adjusting and malleable people around. Perseverance and persistence are commonly found attributes in the academic world. My scientific background has enabled me to co-opt this in the industry. Adversity is definitely going to be part of the journey, but instead of viewing it negatively, it is important to focus on the positives and keep looking forward. Given the diversity of humanity, what motivates me the most is the opportunity to meet that next extraordinary person with the potential to change the world.

I think the biggest pro of working in the industry is that one's time spent is remunerated appropriately. Therefore, while in the academic world, one is busy making compromises in their personal aspirations, one doesn't need to do that while working in the industry. However, the lifestyle and idealism of the research world, the ability to reflect over complex questions and getting the philosophical and creative space to do that, is something that the industry may not reward.

What is your mantra for success?

It is up to you to build your career around your personality and skill sets. Constantly work on developing both and watch your career grow around you. Never back down from accepting a challenge but understand clearly when you have met your match and make the adjustments without hubris.

RAJESH NAIR

Principal CEO, Basil Biosolutions

Rajesh Nair is a post graduate in life sciences as well as an LLB. He has more than 20 years of experience in sales, marketing and product management in various territories and regions. In 2014, he founded Basil Biosolutions, a complete solution providing company for biological and chemical research and human diagnostics. Presently, he is leading a team of 12 people in Basil Biosolutions.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

There is a much more disciplined approach in industry as compared to academia. This is not to discount the necessity of discipline in academia; however, the intensity observed in industry is of a different level. Most of the actions are result-oriented and unlike academia, industry functions on short-term goals. Even though they plan their goals around the financial year, ultimately every task is oriented around one quarter. Thus, people transitioning from academia may sometimes have a hard time acclimatizing to this structure.

What does an average day look like?

There is no generalized setup for a day; every day requires one to have a different approach and strategy. For example, a sales manager might have a goal of meeting 6 customers in a day, but the success of this goal depends on a lot of external factors. For example, the availability of the customer and commuting problems due to distance and traffic might hamper the completion of such a goal. Additionally, the challenges faced while communicating with each customer are different, depending upon their moods, behavioural patterns etc. This is the beauty of this sector - one gets to meet different people every day. Thus, most of the days are going to be eventful days, rather than 'average' days!

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

There is a lot of scope for connecting with people and building up professional relationships through social media platforms, LinkedIn and Twitter being the most useful. Additionally, a lot of industry professionals are lately being invited to give TED Talks, thus giving the academic world an insight into the functioning of an industry. In olden days, one followed a set path which consisted of post graduation followed by M.Phil or PhD, followed by postdoc, and then becoming a hardcore research-oriented person. But the scenario has drastically changed in the last ten years. The industry has opened up for academicians to flood in.

Mentors definitely play a huge role in helping ease the transition. It is the responsibility of the mentor to look closely at all the students that are working for them, identify the defining strengths/traits of each one, and accordingly suggest the various options available in the industry. Those who do not receive this mentoring in the earlier stages of their career turn up in the industry quite late, after doing years of research and

teaching jobs, by which time they have fewer opportunities of growing in the industry. Mentors can play a key role in identifying a student's aptitude and potential, and thus helping the student make conscious career choices outside of academia.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

When one enters the industry, their mindset and attitude automatically undergo a gradual change. An important mindset change that one can develop is to keep an open approach towards all the possible growth opportunities and to scale-up one's learning and grasping abilities.

Additionally, most companies have an orientation process in the first week for a new employee. This orientation centres around the functioning of the different departments of that particular company such as HR, admin, sales & marketing, product management etc. This in-house training is definitely beneficial for academicians as they can start adapting to the mindset changes that need to be made.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

Keen observation skills and a pleasant as well as enterprising personality are some of the most preferred qualities for a prospective salesperson. A good salesperson should have a thorough command over their language, exemplary interpersonal skills and should be able to present the product in an attractive manner. An account manager who has to balance the needs of the customer along with the demands from their own organization needs to develop a certain amount of diplomacy and should also have good convincing ability. A person with good observation skills can develop many of these skills on the job itself, by learning from their senior colleagues.

How can someone present their profile effectively and make their presence felt?

A very long CV with skills exaggerated in a flowery language hardly ever makes an impression. A CV should be precise and should highlight one's qualifications clearly. Most importantly, it should have a list of key references who can be contacted to learn more professional details about the candidate.

Coming to the interview, one thing that I have observed is that the more one talks about oneself, the lesser is the (eventual) performance. One should be as truthful as possible and answer all the questions to the point. This automatically builds the trust factor and it's easier for the organization to understand the person's commitment level.

An organization normally bases the salary of a prospective employee on the following points: qualifications, interview performance and the commitment level in the previous organization. Based upon these factors, the eventual performance levels of the candidate are gauged and the salary estimates are chalked out accordingly. Thus, if the company agrees to a higher salary than the one that has been estimated, then it's the responsibility of the candidate to live up to those expectations.

For freshers, I have three tips: (1) understand if the job that they are applying to is the right fit for them, with respect to their qualifications and job requirements (this can easily be done by discussing with people from their network and carrying out research on social media), (2) check the product details thoroughly, whether it's a new product or something they are familiar with, and (3) it is always better to agree with the starting salary that the organization is willing to offer, even if it initially sounds like a compromise, because it is important to get into the system first. The first year can be a low-ebb year, financially. However, one can eventually grow and get a performance-based raise.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

One can proceed from being a technical sales expert to a sales account manager and then eventually a business development manager. If the organization is convinced of a person's scientific background and expertise early on, then they can also move laterally from sales management to product management. In this case, during a product launch, they can get introduced to several national and international organizations in the sector, thus paving a way for them to move up the ladder. In the pharmaceutical industry, for example, every drug is a specialized product. Thus there are lots of possibilities for one to explore in this vertical.

What are the key evaluators of performance & success and how are they different from academia?

Evaluation in an industry takes place after every quarter. During the past few years, HR departments have introduced a lot of new evaluation parameters, which are at par with international organizations. One key evaluation parameter is an employee's ability to engage in lateral thinking, which is inherently present in many researchers. Thus, academicians can bring these qualities to the industry and improve their performance. Another important evaluation parameter is how easily one is able to gel within the industry culture. Diplomacy and tact are valued qualities for any organization and are important parameters for evaluating any employee's performance.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

I remain self-motivated most of the time. I prefer to start a new day with the same fire and enthusiasm that I ended the previous day with. One of the biggest struggles is dealing with psychological fatigue as that can disrupt your life completely. One of my favourite quotes is, "The biggest surprise in the world is 'tomorrow'". So I avoid thinking in either good/bad terms about the future and just focus on making the present fruitful.

I have faced several hurdles during the initial phase of my career where in spite of performing well, I was denied a particular increment or promotion due to internal politics. However, what I have learnt over the course of my journey is that one always has an option not to pick up the baggage of politics. I have always believed that behaving and moving without that baggage can help one move up the ladder faster. As far as pros and cons are concerned, it really depends on one's perspective. Small hurdles might arise, but one shouldn't get too disheartened and instead should focus on the big picture.

What is your mantra for success?

There is no fixed formula, according to me. It is always a combination of lateral thinking and managing one's time and energy levels. If one has the capacity to hone all these things properly, then they can achieve whatever they want.

Section 4

Careers in Scientific/ Technical Communication

Trained communications personnel play a critical role in the life science and pharma industry, ensuring that information about products, services, technologies, and new research are effectively translated into forms that are suitable for consumption by various stakeholders in the process. They ensure the continuity of knowledge, and help in making this knowledge accessible to a wide audience. Researchers who have a knack for simplifying complex scientific topics, communicating with diverse audiences, and maintaining a big picture view of their research, may find their calling within this sector.

AVISHEK PAL

Scientific Communications Director, Cell and Gene, Novartis Technology

Avishek Pal is a Microbiologist by training and a Certified Medical Publication Professional™ (CMPP™), with more 14 years of experience in the field of scientific communications spanning publication management and strategy, medical education and scientific events for global brands across Cell & Gene therapies, Oncology, Pharma and Vaccines. He has led enterprise-wide initiatives in defining and overseeing publication standards and best practices, optimizing publication management platforms and integrating innovative digital and plain language trends into publication strategy to enhance the reach and engagement of publications. He takes active interest in data transparency initiatives, patient engagement in publications, publication ethics, and has led various workshops and training sessions on publication writing and publication ethics. In his current role as Scientific Communications Director, Cell & Gene Therapy, Novartis Oncology, Avishek leads scientific communications and medical engagement strategy for Novartis' CAR-T program.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

I think Pharma organizations are inherently designed and geared towards delivering pragmatic and time-bound healthcare solutions. While each organization may be set-up in their own unique way depending on their leadership vision and culture, in principle, they are all driven by a common purpose – ensuring their products/compounds/devices/etc. reach the maximum number of patients in the shortest possible time. And this can be achieved only through collaboration, inter-dependencies, high levels of trust, experience sharing, and learning from past mistakes.

Contrary to what some may think, it isn't about just individual responsibilities but individual empowerment, and it isn't simply about holding individuals accountable but also providing them sufficient support to set them up for success. The element of collaboration is very, very high. Organizations are now moving towards a more tolerant culture where it is okay to make mistakes, learn from them, and move on quickly to exploring other possibilities. There is an openness towards innovation and doing things differently. I think in that sense, it is similar to academia since there too, one is always experimenting with things and often things don't work out.

In terms of roles and responsibilities, the expectations are more structured, discussed in advance, and ongoing feedback helps reset performances. Also, there is a very structured approach in terms of training, guidance and mentoring. When a new candidate is hired, there is a well-defined onboarding process, so that there is relative ease in absorbing vast amounts of new information, acclimatizing to the new environment, and starting to grasp the nuances of one's role. There is a lot of opportunity to be part of different initiatives and activities even outside one's responsibilities and these interactions and engagements allow fabulous exposure in terms of developing leadership skills, negotiation skills and communication styles as well as developing organization-wide networks which are crucial for long-term success.

The Pharma industry is governed by strict rules and regulations and is scrutinized closely at all times. Hence, there are a large number of non-negotiable processes and standards to follow for most tasks and activities. While that helps streamline the work appropriately, it might be perceived as restrictive.

What does an average day look like?

I can speak for my area of work, scientific communications within Global Medical Affairs. A typical day varies greatly, especially depending on one's role and level of responsibility. However, things are extremely time-bound, especially where external deliverables such as manuscripts, conference abstracts, posters, presentations etc. are concerned. Therefore, the whole idea is to plan out longer than just a day. A major part of my day, of course, is spent on calls/meetings with internal and external subject matter experts including the physicians who lead our clinical trials and are authors on

publications, either to kick-off projects or to define the scope of upcoming projects or to address input and feedback on ongoing projects. A lot of the internal discussions are around product strategy, communication tactics, communication channels, alignment with cross-functional teams, sharing and receiving feedback on proposals.

In addition to these, there is a lot of internal communication happening on a daily basis in the form of emails, so that is also an important aspect of one's day at work. This is especially true in the virtual style of working that we have been in due to the COVID-19 situation. Furthermore, if the organization works across different time zones, then planning needs to be done accordingly. Sometimes, a working day would also comprise trainings, knowledge-exchange sessions, cross-functional strategy meetings etc.

Apart from these role-related aspects, a day could also contain certain non-work related aspects (depending upon the level at which one is operating), such as taking part in company initiatives, showcases for the leadership team, external meetings with peer scientific communication colleagues from other organizations, etc.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

Nowadays, a lot of industry organizations have opened up to the wider community to collaborate with academic and professional institutes. The aim of these collaborations is to co-create curriculum, exchange students/personnel for short-term/long-term projects and research opportunities, obtain funding for projects, conduct hackathons, etc.

Social media platforms like LinkedIn and Twitter have been great in providing a platform for experts to openly share their expertise and experiences. Following and engaging with experts and peers on these platforms could be a wonderful way to stay up to date on the latest developments. One can connect with industry professionals to talk about their career trajectories, opportunities in the industry, various programs hosted by the industry etc. and some of these discussions and connections may eventually translate to opportunities to engage with Pharma organizations in some form. It's definitely not easy, but if one finds common themes and interests with a professional connection, then one can at least get a head start into expanding their professional network. Professional referrals are also a great option to build one's network.

Identifying mentors/sponsors is, of course, a great way to understand how the industry functions. However, I personally feel that networking shouldn't be just for the purpose of realizing self goals and should definitely not be for achieving one-sided aspirations. One should be keen to genuinely engage in knowledge sharing, exchange of ideas, debate on relevant topics and try and make the time spent by both, the mentor/sponsor and the mentee, a value proposition.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

Again, I am speaking specifically for scientific communications. Understanding the science and being able to translate it into a document is just one small aspect of working in the scientific communications vertical. When someone is conducting research for writing a paper, they are usually presenting/representing their own work. But, someone who is part of a scientific communications team is essentially helping someone else communicate their work through effective planning and delivery, so that's one huge shift from being researchers/authors themselves. Asking the right questions and understanding the motivation of the researchers in designing and conducting a clinical trial can go a long way in delivering a meaningful, high-quality publication.

Secondly, one needs to understand the dynamics of working in a matrix organizational structure. Hierarchy, seniority, and experience are extremely important; however, these don't make an individual impervious to questions, challenges, and debates from juniors and peers, as long as this is done with the intent to improve outcomes. Pharma organizations have evolved into establishments where the junior-most employee has access and the freedom to ask questions to the top leaders.

Thirdly, team fit/organizational culture is of the highest importance here. Every individual in a team is empowered to make their decisions and work independently, while being joined by common objectives and vision. Individual achievements without collective achievements are frowned upon. Sharing expertise, coaching others, and receiving constructive feedback is what pushes the boat of self-development and growth forward.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

I think openness to new ideas, adaptability to ever-changing situations, and agility are important skill-sets needed to thrive in the Pharma industry. Whether or not a candidate possesses these soft skills often defines their suitability for a role. Lack of experience and mediocre performance is often dealt with patiently; however, bad attitude or behaviour is dealt with swiftly. The most important expectation is that one upholds the values of the organization and this cannot be replaced simply by high performance.

My belief is that while working in a particular role, one should work in such a way that they define the role and not vice versa. An ideal candidate should be willing to walk the extra mile and those experiences, exposures and learnings will eventually lead to growth and success.

How can someone present their profile effectively and make their presence felt?

I think a well-designed CV is a good starting point to showcase one's skills. One should try and avoid basic errors in formatting and language, especially when one is applying for a writing/communication role. Highlighting relevant instead of all experiences and tailoring the CV for specific roles rather than using the same CV for all applications show intent and interest, which are crucial at the screening stage.

The interview process is of several rounds and is mostly in the form of a conversation, rather than an interrogation. Currently, the style is more situation-based rather than being only subject-focused. It is always expected that a candidate will be able to recall specific examples and experiences to support their achievements. It's tough to think of such examples during the interview process, so it's better to be prepared beforehand. Another highly valued quality that interviewers explore is whether a candidate has made an effort to research/know more about the role, organization, domain, etc. Interviewers also observe closely whether a candidate is inquisitive and is asking the questions with the intent to understand the role and organization better. The candidate should be confident enough to display their strengths and the value-addition that they would bring to the team and the organization. The most important aspect for a candidate to keep in mind during an interview is to have open conversations and to present their true selves.

Interviews can be a great opportunity to build connections, no matter what the final outcome is. Often, these become the starting point for mentor/mentee conversations which could have a lasting effect on personal growth and professional development.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

Each department/division/organization has its unique trajectory and it will be incorrect to generalize. Specifically, in scientific communications, there could be writing roles, project management roles, people management roles, brand/disease area strategy roles and many others. The thought process is that it generally takes a few years for one to master a particular role before they can explore something else, but that doesn't stop the more agile ones from moving quicker than the rest. Depending on where or which type of role one starts at, there is always the opportunity to explore other roles, departments, geographical locations through job rotations, secondments, etc.

Ultimately, the trajectory of one's growth depends upon the preference of the person - whether they want to be a subject-matter expert or become a project/people manager, whether they want to be science-focused or become more strategy-oriented. Of course, it is possible to have both aspects in one's development plan and continuous discussions with department leaders can help one explore appropriate opportunities. Sometimes, it's also about being at the right place at the right time and effectively navigating the organization to showcase one's strengths and qualities, in order to

enable cross-functional movement. If someone is already dedicating their time and energy towards performing some of the tasks at a higher level than their current job profile, then their chances of getting noticed are automatically higher.

What are the key evaluators of performance & success and how are they different from academia?

Like other aspects, expectation setting and performance evaluations are very structured and transparent. The objectives of an organization are set at the beginning of the year, right at the level of the Chief Executive Officer (CEO). These objectives are high level and get more granular as they are shared across different levels in the organization. Eventually, each team adapts the objectives as per their current responsibilities, while staying aligned with the organizational goals. These objectives are then revisited periodically throughout the year between an associate and their manager with the aim to enable ongoing feedback on performance as well as development plans. Thus, at the end of the year, the discussion is more a summary of past discussions rather than a mismatched debate on what could have been.

I think because this is set so clearly upfront, everyone is clear about the expectations, which include performance as well as values and behaviour of the candidate. Some important evaluators are quality, compliance, efficiency, innovation and collaboration.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

When I started my journey as a publications writer, I didn't know exactly what I was getting into. I only knew that it involved writing and science. But I picked up a lot of my skills - the soft skills, writing skills, training etc. from my first manager and my first organization, GSK Vaccines. I spent close to six years honing my skills working on different disease areas and with different stakeholders. Eventually, since I wanted to work in oncology, I moved to Novartis Oncology.

I feel that if one has the appetite to learn and grow, then they must be willing to move out of their comfort zones and take calculated risks. Within Novartis I have grown across levels, worked across divisions and teams – each change, every experience has been a learning opportunity. I have been very active in cross-functional initiatives and also outside of Novartis within the scientific communications community. These exposures have helped me hone my skills, bridge gaps, and understand my blind spots. Additionally, to stay motivated and to keep myself updated about the job market, I make sure to be part of internal and external interviews. This has been a good exercise that has ensured that I continuously upgrade my skills to match the continuously evolving needs of my area of work.

I stay focused and connected to my work and think it's extremely important to find one's own area of interest. And, something that I am trying to do more nowadays is to learn how to detach from work, and figure out one's "on-off" button. I think these aspects are crucial in maintaining a balance, especially as one grows in an organization. In fact, I wouldn't call it a balance, but more of a process of prioritization and being in the moment, plus giving your complete attention to whatever your priorities are at that point.

Coming to some pros and cons, each organization is different. I am sure there are strengths and flaws in every organization - everything cannot be great all the time - but what is important is how one navigates this to achieve one's ultimate goal.

What is your mantra for success?

My mantra is simple: don't let your job description limit possibilities for you, let your aspirations redefine the opportunities for you. When this is achieved, then success will follow automatically.

JAYASHREE RAJAGOPALAN

Senior Manager, Global Community Engagement,
Cactus Communications

Jayashree works at Cactus Communications (CACTUS), a global technology company that specializes in solutions to accelerate research impact and support researchers at every step of their journey. Jayashree has been part of the scholarly communications industry for over 15 years. She joined CACTUS fresh out of journalism school to explore academic editing as a career option. Until recently, she was also part of Editage Insights (a knowledge-sharing platform for researchers) as a writer and editor of scholarly publishing content. She is now Senior Manager, Global Community Engagement, at CACTUS and is building a motivated, supportive community of researchers. Given Jayashree's passion for knowing more about how scholarly publishing and academia work, the roles she has played at CACTUS have helped her learn more about how researchers navigate each step of their journey and appreciate that each researcher has a unique journey and story. She is also a keen follower of discussions around academic mental health and wellbeing in academia.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

To begin with, industry and academia are very different and they need to be viewed as distinct career paths rather than comparable ones. As a science communication professional, you disseminate research findings to different types of audiences, or play a role in how important scientific findings are disseminated or applied. You can dive directly into the heart of the subject, work towards communicating it, and see the impact of that. I also think the level of responsibility is slightly different in the science communication space – as a science communication professional, you are responsible for the information (originally developed by someone else) that is going to go out to a larger audience, including both experts and laypersons. I think work-life balance may be a little better in industry as compared to academia. In industry, it might often be possible to measure the impact of your work slightly sooner. I am not trying to say that academia is better than industry or vice versa - rather, that both have different environments, and work profiles in both would be quite different.

What does an average day look like?

In industry, for the science communication sector, you could expect a lot of research-based, project-based, or communication strategy-based work. A typical day would involve a fair bit of creative thinking, reading, learning, analysing, or planning. One thing to note here is that even if you may have had a background in the life sciences, for example, you may not have worked on the specific topic that you have to communicate (in written or in any other format). So, you need to ensure that your output presents the researcher's work most accurately.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

If you are interested in pursuing science communication as a career, it would be helpful to start early, instead of waiting until after your master's or PhD. Look at the different options that are available. Building a network also helps direct opportunities your way. The best way to build a network is to connect with people who are actually working in the field. An easy way to do this is to find science communicators or science journalists on platforms like Twitter and LinkedIn, reach out to them, and ask them about their professional journey and experiences. This can seem awkward and difficult, especially if you are an introvert, but even if you begin simply by liking or commenting on their posts to leave your thoughts, then that opens up a line of conversation and helps you build familiarity.

Of course, there is no golden key that can unlock all the networking doors. At times, you may encounter people who are not as responsive. Allow people time to respond – the people you reach out to may be busy. Be okay with this and make active efforts to find more people.

You could look up online resources that talk about science communication as a potential career option for researchers. I can think of Nature blogs, which publishes personal transition stories, or resources like The Cheeky Scientist, which talks about the transition process from academia to industry as well as opportunities you could explore. I would also strongly recommend checking if your own institution or organization has the need/roles for science communicators and then begin exploring from there. Even if there are short term roles or internships, they can still be useful in giving you a taste of what a full-time career in science communication might look like.

As far as mentors are concerned, it depends on what kind of views your mentors have regarding staying in academia versus switching to industry. If your mentor believes that the traditional (academic) path would be an ideal one to follow, then it boils down to your equation with them and how comfortably you can discuss a non-academic career with them. Mentors who are aware of and interested in science communication can help a lot more.

In terms of building a skill-set, mentors can definitely help. Having regular conversations with your mentor regarding the latest research articles can help you enhance your analytical abilities. You could also use your mentor as an early reviewer of any science communication pieces you write.

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

The biggest mindset change is that of ownership. As a researcher, you are the creator of your own work. As a science communicator, you are the conduit. While you may not be conducting the research yourself, you still have to use all the knowledge you have or can gather about the topic to help communicate the work of another researcher. So, it's important to not compromise the integrity of the research and understand that you are simply a bridge between the researcher and the target audience (or, the consumer of the information you are disseminating the information to). Your audience may or may not be from the same field, so my advice would be to not succumb to the temptation to come up with attractive or flamboyant content, but to share accurate information that is simple to understand.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

Before I go into detail about the skill-sets that can be developed, I would like to illustrate the different roles that you could consider in the field of science communication. The first misconception to let go of is that science communication simply, or only, involves

writing about research. A major chunk could involve writing – technical writing, medical writing, social media writing, plain-language summary writing, educational content creation, etc. But there are several other roles to be considered.

For example, science journalism is a completely different arena. You could become a specialist in social media management. Then, there are roles such as science communication officer, science communication manager, scientific advisor or media liaison. You could be involved in the global distribution of research. You could work with a science funding organization that needs science communication professionals to develop plain language summaries of the published research funded by them. You could join a science communication agency which specializes in a range of scicomm solutions. You could also work as part of the editorial or production team with a scholarly publisher. And then, there is a whole mini-universe of visual science communication which includes a range of opportunities like creating visuals for research manuscripts, making infographics, designing research-based posters, or preparing journal covers. There are several groups exploring creative avenues of science communication. For example, the Talk to a Scientist series initiated by Dr. Karishma Kaushik's group works on science outreach among children. The Pint of Science chapters across the globe get researchers to share their findings with people at local pubs, bars, or cafes!

What I'm trying to say here is that developing the skill-set for a career in science communication largely depends on the role that you wish to pursue. For example, written science communication demands the ability to understand data in a study, identify the story it tells, and convey that information in a crisp and accurate manner. Visual communication involves the ability to bring science to life through art as well as mastery of designing tools. Another essential skill is the ability to understand the purpose of the communication and then determine the best way to communicate it using all the information and data available to you.

I think the first step for making the transition would be to identify if this is your 'calling'. All of the science communicators I know love talking about science even more than actual research – they simply love communicating! Often, students or researchers are so involved in the daily grind of getting things done that they may not even realize if they have a passion for it. A good starting point might be something as simple as trying to explain a complex scientific concept to a small child or a family member who knows nothing about it. Do this and try to gauge if they understood the scientific concept and if you actually enjoyed the entire process! You could also try writing up a summary of a research article in your own words, or revisit your previous assignments/theses to find if and how you could have written them better.

I feel that science communication is not just for researchers, media/communication professionals or even those who are just passionate about writing. It is for people from both ends of the spectrum and also for everyone in between. Anyone who has a deep interest in any of the scientific disciplines and is buzzing with ideas about the way science could be disseminated can take up science communication professionally. There are so many avenues available, especially now that there is increasing awareness of the importance of good scicomm. This is a great time for academics to explore this as a career option.

How can someone present their profile effectively and make their presence felt?

There will always be a first time when you're applying for a position in science communication, so it is likely that you don't have previous experience, and this is perfectly fine. You shouldn't worry about this because the whole premise of transition is based on the assumption that researchers have little or no industry experience. Remember that what you are bringing to the table is your knowledge and training, which is extremely valuable. So highlight the skills you gained as a researcher on your CV – qualitative/quantitative analysis, data analysis, understanding visual representation of data, project management, the ability to pursue a project till its end, curiosity about things you can't explain, the desire to constantly learn and build your perspective, etc. The articles/publications you may have published during your research could also indicate your ability to write/communicate science. If you've attended and presented your work at conferences, then this indicates your ability to network with people. If you've assisted someone in improving their manuscript, then editing is another skill that you possess. So think about the skills you developed during your PhD and make sure they find their way into your CV!

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

The career trajectory in science communication completely depends on the kind of organization you're applying to, as each organization would have its own structure. Of course, it also depends on individual preferences. So, for instance, you may begin as a science writer and later move to developing educational content.

To give you my own example, I joined CACTUS as an academic editor, and then progressed to becoming a senior editor and senior reviewer (reviewing papers that other academic editors worked on). I then made a lateral switch and started evaluating job applications (for science communication, specifically academic editing-related, roles at CACTUS), and also did some campus recruitment drives. After this, I was part of Editage Insights (CACTUS' knowledge-sharing platform) where I created content about dealing with different aspects of academic life and publishing. Currently, I am involved in building a community of researchers in order to empower them and help them grow individually. From a science communication support role, I decided to expand my focus and grow laterally.

What are the key evaluators of performance & success and how are they different from academia?

There is no universal evaluating metric. For example, in some companies, medical writers are evaluated using quality indicators. If you're a science journalist, you may be evaluated based on the number or kind of stories you cover. If you're a social media

manager for a research institution, then perhaps the followers you gain and engagement metrics you meet could be indicative of your success. If you are engaged in visual science communication, then perhaps, the quality of the visual output you create could be an indicator of your performance. Personally, I feel the most important factor of evaluation should be the accuracy and efficiency with which science is communicated, without compromising any facts and by making sure that the output is easy to understand.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

I have master's degrees in English Literature and Children's Literature and a diploma in journalism. At the beginning of my career, I did an internship with a newspaper where I realized that whatever I had learnt about journalism was not what I seemed to be practising and I was missing writing and communication a lot. This is when I came across CACTUS, and, as mentioned earlier, started working as an academic editor in the humanities and social sciences. Since I had no prior experience working as an academic editor, the biggest hurdle for me was understanding an author's research and then working on improving a manuscript to make it fit for submission to a journal. I remember reading up a lot just to make sure I don't change the terminology. Of course, I made mistakes, but I learned from them. I also got to edit manuscripts in other fields such as the life sciences and physical sciences – this was a huge challenge, but one I thoroughly enjoyed because there was so much to learn! Eventually, I became a board-certified life sciences editor (an exam administered by the Board of Editors in the Life Sciences).

While exploring the world of scholarly publishing, I was also exposed to the different ways in which science can be communicated and I saw that there is an array of possibilities. I began to realize the huge difference that a science communicator can make. It was extremely fulfilling to me, to see a paper I edited make it to publication. My interactions with researchers over the years have also served as invaluable learning experiences. What drove me was being a part of the research that was published, getting to learn new things every day, and being able to guide researchers with the resources they need. In my current role, empathy and a passion for community building keep me going.

As for pros and cons, I don't think anyone could share one universal list of pros and cons because that wouldn't be fair to either stream! Both academia and industry have their advantages as well as challenges. One perk of academic research is the opportunity to pursue your passion by deep diving into the topic of your choice so you gain invaluable knowledge in your field. One perk of being a science communication professional is

that you get to be a part of the research without doing the actual research. This does not imply that a science communication role offers a shortcut, but rather that it gives you a great opportunity to stay connected to something that you are passionate about, especially if you are finding it difficult to break ties with academic research.

What is your mantra for success?

I think it's perfectly okay if you take your time to figure out what you want to do and why you want to do it, but that shouldn't stop you from experimenting and growing. So my mantra is a cliché, but it's one that works! Make sure you do what you love, and love what you do. This thought is so underrated, but it's true because, without this approach, both your journey (professional as well as personal) and growth end up becoming shallow. I've been doing what I love and loving what I do – every day is exciting, and I feel very lucky to be part of an organization like CACTUS that not only has several opportunities for people wanting to explore a range of scicomm careers but also encourages different avenues of growth. So, yeah – do what you love, even if it means you take time to find what it is that you really love doing, and love what you do!

Section 5

Careers in Regulatory Management

Most industries need to adhere to strict regulatory standards to ensure the safety, efficacy, quality, and performance of their products. Those working in this field use their deep knowledge of the regulatory landscape to make sure that the products developed and released by the industry adhere to such standards. For researchers who are passionate about ethical conduct of research as well as about responsible manufacturing practices, this can be an interesting area to venture into.

AKHILA PARTHASARTHY

Director, Regulatory CMC, Gene Therapy, PTC Therapeutics Inc.

Akhila Parthasarthy, PhD, RAC is currently working as a Director, Regulatory CMC, Gene therapy at PTC Therapeutics in the greater Boston area, USA. As part of her role, she oversees regulatory filings for gene therapy products to various agencies like FDA (US), EMA (EU), ANVISA (Brazil). Akhila has about 9 years of experience working in the field of regulatory affairs managing the authorization of numerous small molecule drugs, recombinant proteins, and monoclonal antibodies. Prior to working at PTC Therapeutics, she has worked at several pharmaceutical companies in the Boston area like Shire Pharmaceuticals and Takeda Pharmaceuticals. She has extensive experience in working with regulatory agencies and specializes in regulatory strategy on the manufacturing side of drugs and biologics. Akhila has a PhD degree in Biochemistry from Indian Institute of Science, Bangalore and worked as a postdoctoral scientist at Harvard Medical School in Boston, USA. She also has a regulatory certification, RAC.

Environment/Atmosphere

What are the key differences in the atmosphere and the working style of the industry as compared to academia?

In my opinion, working in academia is more laid back. There are deadlines and paper submissions, but they are not necessarily bound by hard deliverables or company revenue. However, I think most people work a lot more in academia than in the industry. There are more meetings in an industry job, and one needs to balance that with getting your day-to-day work done. It also depends on the type of role that you have and the seniority of the position.

What does an average day look like?

An average day in the industry is 70% meetings and 30% time for work. However, the days are typically 9-5 and most people do not work more than that.

Making the transition

How can one build a network to enhance their knowledge about the industry? How important is the role of mentors in this process?

Although a lot of people in the industry have come from academia, it is certainly hard for people in academia to get industry jobs as they are simply told that they don't have the necessary experience, however good a scientist they are. The important thing is to get your foot in the door and the only way to do it is by networking. Mentors are extremely important in this case. If you get a good mentor, making the switch is very easy. Most people don't have mentors and networking with as many people as possible is the best way to find them.

What are the key mindset changes that one needs to make in order to adapt to the industry culture?

Many people in academia lack confidence. They are very good at what they do but they always hold themselves back. The mindset that really needs to change is to understand that they are not individual contributors anymore. The whole company has a stake in their program and there is a team of people working on it. Teamwork and sharing the program is the key to adapting to an industry position and the individual must be adaptable. Another key mindset change is having an open mind. Transitioning from academia to industry might be like stepping out of your comfort zone but having an open and unbiased mind really helps with the transition and the overall success in the field.

What are the most preferred qualities in an ideal candidate in this sector? How can one develop the essential skill-set for it?

I think the most important factor that sets a candidate apart is their ability to work in a cross-functional team with other members of different expertise. Most people who interview for the role have the necessary academic qualifications but almost all companies look for people who can work cohesively and efficiently as a team. Additionally, as mentioned before, one of the key factors is having an open mind.

The skill-set will be different based on the job function in the industry. For example, if an individual wants to transition from academia to regulatory affairs, he/she will need a strong knowledge of agency guidances and guidelines which include regulatory guidances from FDA (US), EMA (EU), WHO etc. In addition, getting a certification called Regulatory Affairs Certification or RAC can certainly give the individual an edge over others. There are a lot of regulatory courses offered online and enrolling in a short course to familiarize oneself with the concepts is essential to make the transition.

How can someone present their profile effectively and make their presence felt?

LinkedIn is one of the ways to do that. Other ways are to attend relevant conferences or industry forums and interact with as many people as possible. Sometimes, it can be disappointing and hard, but the only way is to keep trying.

The CV is the first and only step to make a first impression and have the individual stand out, among others. Instead of a lengthy CV, a short resume of not more than 2 pages is preferred by most people. The individual should highlight their key strengths in a short paragraph before moving on to the details. The key points for consideration while moving into a field like Regulatory affairs is the background learning that the individual has done to get familiarized with the regulations and changing regulatory landscape. Any relevant internship, even if it is for a short time, is very valuable to be included in the resume.

Achieving Success and Making Career Progression

What does a career trajectory look like in this sector?

Once you get your foot in the door, the career trajectory is much better in the industry. The industry offers a variety of careers. For example, if someone joined as a scientist, over a few years, they can choose to either go up the levels as a scientist or can, at any point of time, switch to functions like quality, regulatory, clinical development, manufacturing sciences, business development, alliance management etc within the company. The trajectory of success for some of these fields is very fast and rewarding and gives the individual a lot of visibility.

What are the key evaluators of performance & success and how are they different from academia?

The key evaluators of performance and success are essentially the same as academia, performance being the major one. However, feedback from your team members is one of the key differences in the evaluation between academia and industry. Sometimes how a person works cohesively in a team and not as an individual contributor plays an important role in the overall performance evaluation. It is also dependent on the type of role and position in the industry and everyone is not evaluated on the same parameters.

Lessons from personal experiences

What are the main hurdles that you have encountered so far and, how did you overcome these hurdles? What motivates you to keep going? What according to you, are the pros and cons of working in this sector?

The main hurdle that I encountered was to make the switch from academia to the industry. It can sometimes take a long time and can be frustrating. I was one of the lucky people to get a good mentor and do an internship which gave me a good foothold in the field of regulatory affairs to define my career.

I am generally motivated by the work that I do and the difference that it brings to the patients when a drug is developed and approved for use. There are pros and cons to working in any position. The pros are certainly the opportunity to learn more and diversify to where you want to be. It also gives you a perspective of avenues that are not typically thought of as a scientist. Growth in the industry is also better and is more stable to problems in funding etc. The cons for somebody who had worked many years in academia would be that although you are putting so much work into the project, it is shared by many people. It can sometimes give rise to a bit of a power struggle.

What is your mantra for success?

I do not have any mantra for success, but one should always be adaptable, confident, and hardworking and success will not be very far.

About IndiaBioscience

IndiaBioscience is an organization that fills a unique niche in the ecosystem of the life sciences in India, by being a catalyst to promote changes that affect the culture and practice of the field, through engagement with academia, government and industry at various levels. IndiaBioscience aims to increase the visibility of science in society, by being a hub for policy discussions, science communication, and as an aggregator of information.

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IndiaBioscience

सत्यमेव जयते

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